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## INSANITY AND GENIUS.

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HUMAN beings may be classified, in a general way, into normal and abnormal. By "abnormal" is meant departure from the normal. While the term "abnormal" often suggests ethical or æsthetical characteristics, it is here employed with no such reference. Thus a great reformer and a great criminal are both abnormal in the sense of diverging much from the average or normal man.

Human abnormality may be divided into three general forms—insanity, genius, and crime. The third form, "crime," includes all excessive degrees of wrong.

Assuming the natural history point of view, man should be studied as we study all species below him. In an investigation, therefore, of insanity and genius, we must, as far as possible, eliminate all those ethical and æsthetical ideas (however important) that we have been accustomed to associate with these terms; for an empirical study is concerned with facts, rather than with sentiments, emotions, or ideals connected with such facts.

### INSANITY.

Krafft-Ebing\* defines insanity, from the anatomical point of view, as a diffuse disease of the brain, accompanied with nutritive, inflammatory, and degenerative changes. The division between mental and brain diseases is purely a prac-

\* "Psychiatrie," 1890.

*Presented by the author*



tical one, and not strictly scientific. Mental diseases are a special class of cerebral diseases, and from a clinical standpoint are distinguished by psycho-functional disturbances. Insanity is not only a disease of the brain, but also a diseased alteration of the personality. One difficulty in distinguishing between sanity and insanity is due to the fact that the manifestations of one can correspond exactly to those of the other. The first symptoms are not generally intellectual, but emotional ; there is abnormal irritability. The fluctuating line between sanity and insanity, as frequently seen in public and private life, can, says Krafft-Ebing, oscillate between the extremes of genius and mental disease. Such men show peculiarities in thought, feeling, and action ; they are called strange or foolish because the great majority of men feel or act otherwise. So their combinations of ideas are uncommon, new, striking, and often interesting ; yet they are not capable of making use of these new thoughts. Such individuals are not yet insane, but still they are not quite right. They form the passage over to insanity ; they are on the threshold. They are so eccentric as to be said to have a strain of madness in them. Maudsley \* calls this an "insane temperament" ; it is characterized by a defective or unstable condition of nerve element, a tendency to sudden caprices, to act independently of the social organism ; a personal gratification that seems to others a sign of great vanity. But they are so engrossed in their own impulses as not to be conscious of how it affects others. In Maudsley's opinion, this predisposition to insanity lies close to genius in some cases. He says such pseudo-geniuses are numerous in public life ; they believe themselves on the way to weighty discoveries and humanitarian enterprises, which turn out to be unfruitful ; some are inventors, improvers of the world, revolutionary heroes, creators of new sects, to whose plans an agitated public sometimes lends a willing ear, but whose work necessarily fails, because it is only a "mental flash of a puzzled head," and not a ripened result out of the development of civilization.

Some persons having this insane temperament may be called matroids, to use Lombroso's expression. They are strikingly peculiar, eccentric, and original, but generally in useless ways ; they show disproportionate development ; they

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\* "Pathology of Mind."

are closely allied by heredity to mental disease, and may gradually develop into this state. Thus one member of a family may show genius, another be insane or epileptic. This may indicate an extreme sensibility in the family, which under different conditions of life and body has taken different forms. This extreme nervous sensibility may endow a person with genius, but not the highest genius; for he lacks the power of the critical sense and the vast intelligence of the genius, which permits him to correct his wild imagination. The insane temperament shows originality, but lacks the critical spirit; the ordinary normal mind has some critical spirit, but lacks originality; the genius possesses both originality and critical power.

Clouston says that there are a number of examples of insane temperaments ranging from inspired idiots to inspired geniuses; that De Quincey, Cowper, Turner, Shelley, Tasso, Lamb, and Goldsmith may be reckoned as having had in some degree the insane temperament. Some are original, but in the highest degree impracticable and unwise in the conventional sense of the term. Another form of this temperament is sometimes illustrated in spiritualism, thought reading, clairvoyancy, and hypnotism.

The pseudo-genius, or mattoid, is, then, one who has the insane temperament, with originality and particular talents in certain lines, and often displays a mixture of insanity and genius. In the words of Maudsley, he desires to set the world "*violently right*"; under mental strain he is impulsive, and may be attacked with derangement. A weaker and much less important class of mattoids is the egotistic variety, with no capacity to look at self from an outside standpoint. This self-feeling may widen into the family, but develops no further. This class considers its oddities higher than the virtues of others. Another phase is illustrated by those who have little sympathy for their own kind; they often have extreme affection for some dog or cat, and suppose that they are exceedingly humanitarian because they love animals more than human beings.

Hammond \* says that "the discrimination of the very highest flights of genius from insanity is a difficult, and at times an impossible, undertaking, for they may exist in one and the same person." Hammond also is of the opinion

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\* "Treatise on Insanity," New York, 1883.

that more people of great genius exhibit manifestations of insanity than do persons with ordinary mental faculties. He mentions as showing symptoms of insanity, or at the close of life passing into fatuity, Tasso, Burns, Swift, Mozart, Haydn, Walter Scott, Blake, and Poe.

Schüle \* defines insanity as a disease of the person, resting upon and caused by a brain affection. Here it is to be understood, psychologically speaking, that a pathological symptom does not constitute the essence of a mental disturbance, be the thought ever so broken or the disposition or action ever so anomalous. Hallucinations under certain conditions can appear temporarily, or superstition can come within the range of specific mental disease, and yet there is no insanity. In true mental disease the whole person must be included, so that in his thoughts, feelings, and actions he is no more determined by motives which may be changed by reflection and conclusion, but by irremovable feelings and ideas upon the ego, which, if called up, exercise an incontestable superior power. It is the *mental compulsion* that constitutes the essence of mental derangement. The patient often stands under its power as a whole personality ; at another time he is theoretical or reflective as to this force over him ; but the distinctive point is that he cannot clear it away, nor overcome it through logic, nor stop it by his will. This compulsion is grounded in a fundamental organic brain disease.

According to Arndt, † our manner of knowing, feeling, and willing is differently developed, and shows itself in feeble or strong constitutions, as nervousness, weakness, or insanity ; or as gift, talent, or genius. Every mental disease is a reaction of the nervous system impaired in its nutrition, especially the nutrition of the brain. Arndt's idea is that when a nervous condition appears occasionally in parents and grandparents, it sooner or later passes over into mental disease, as seen in children of aged parents born late, or in children of parents with talent or genius. In the first case (in children born late) this nervous condition develops with the decrease of vital energy ; in the second case it comes from the nature of the higher endowment or genius. This endowment or genius is an expression of a highly organized nervous system,

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\* "Klinische Psychiatrie."

† "Lehrbuch der Psychiatrie."

more particularly that of the brain. Thus it is that all higher gifts, including genius, are very frequently subject to all kinds of diseased conditions, peculiarities, idiosyncrasies, and perversities. Arndt mentions as examples among poets, Tasso, Lenau, Heinrich, Von Kleist, Hölderin, Gutzkow; among artists, Robert Schumann, Carl Blechen; among scientists, Pascal, Frederic Sauvages, John Müller, Robert von Meyer; among statesmen and generals, Tiberius and the Duke of Marlborough. A large number of geniuses were the last of their kind; as Democritus, Socrates, Plato, Aristotle, Cæsar, Augustus, Galenus, Paracelsus, Newton, Shakespeare, Leibnitz, Kant, Voltaire, Gustave Adolphus, Frederick the Great, Napoleon, Linné, Cuvier, Byron, and Alexander von Humboldt. The family of Schiller has died out in its male members. This dying out of genius can only be explained, according to Arndt, by the weakness of the organizations, and the resulting hyperæsthesia. This also is an explanation of the fact that the brothers and sisters of geniuses are often mediocre and sometimes weak minded.

## GENIUS.

Moreau of Tours\* holds that genius is the highest expression, the *ne plus ultra* of intellectual activity, which is due to an over-excitation of the nervous system and in this sense is neurotic; that disease of the nervous centres is a hereditary condition, favoring the development of the intellectual faculties. He maintains, on the basis of biographical facts, that among distinguished men one finds the largest number of insane; that the children of geniuses are inferior even to those of average men, owing to convulsions and cerebral diseases in infancy. Genius is always isolated; it is a *summum* of nature's energy, after which her procreative forces are exhausted. Mental dynamism cannot be exalted to genius, unless the organ of thought is in a condition analogous to that of an abnormal irritability, which is also favorable to the development of hereditary insanity. When the mind reaches its highest limit it is in danger of falling into dementia. The cerebral troubles of great men, from simple nervousness to normal perturbation, are the natural, if not necessary effects, of their organization.

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\* "Psychologie Morbide."

\* Lélut also considers genius a nervous affection, a semi-morbid state of the brain. † Nisbet holds that genius and insanity "are but different phases of a morbid susceptibility of, or a want of balance in, the cerebro-spinal system." "Whenever a man's life is at once sufficiently illustrious and recorded with sufficient fulness, he inevitably falls into the morbid category." Huxley says: "Genius, to my mind, means innate capacity of any kind above the average mental level. From a biological point of view, I should say that a 'genius' among men stands in the same position as a 'sport' among animals and plants, and is a product of that variability which is the postulate of selection. I should think it probable that a large proportion of 'genius sports' are likely to come to grief physically and socially, and that the intensity of feeling, which is one of the conditions of what is commonly called genius, is especially liable to run into the fixed ideas which are at the bottom of so much insanity." Lombroso ‡ ¶ says that from an anatomical and biological study of men of genius, who are semi-insane, from an investigation of the pathological causes of their apparition, marks of which are almost always left in their descendants—with all this in view, there arises the conception of the morbid, degenerative nature of genius.

While, then, some alienists hold that genius is a pathological condition of the nervous system, a hyperesthesia, a nervous or mental disease, others do not go so far; yet all seem to be agreed that the relation between insanity and genius is very close.

As an introduction to the biographical study of genius, it will be interesting to give the opinions of geniuses themselves.

Aristotle says that under the influence of a congestion of the head there are persons who become poets, prophets, and sibyls. Plato § affirms that delirium is not an evil but a great benefaction when it emanates from the divinity. Democritus || makes insanity an essential condition of poetry. Diderot ¶ says, "Ah, how close the insane and the genius

\* "Démon de Socrate."

† "The Insanity of Genius," London, 1891.

‡ "L'Homme de Génie."

§ Phaedo.

|| Horace, *ars Poetica*.

¶ Dictionnaire Encyclopédique.

touch; they are imprisoned and enchained, or statues are raised to them." Voltaire says: "Heaven, in forming us, mixed our life with reason and insanity; the elements of our imperfect being; they compose every man, they form his essence." Pascal says: "Extreme mind is close to extreme insanity." Mirabeau affirms that common sense is the absence of too vivid passion; it marches by beaten paths, but genius never. Only men with great passions can be great. Cato\* said, before committing suicide, "Since when have I shown signs of insanity?" Tasso said, "I am compelled to believe that my insanity is caused by drunkenness and by love; for I know well that I drink too much." Cicero speaks of the "*furor poeticus*," Horace of the "*amabilis insanus*," Lamartine of "the mental disease called genius." Newton, in a letter to Locke, says that he passed some months without having a "consistency of mind."

Chateaubriand says that his chief fault is weariness, disgust of everything, and perpetual doubt. Dryden says, "Great wit to madness nearly is allied." Lord Beaconsfield says: "I have sometimes half believed, although the suspicion is mortifying, that there is only a step between his state who deeply indulges in imaginative meditations and insanity. I was not always sure of my identity or even existence, for I have found it necessary to shout aloud to be sure that I lived."†

Schopenhauer confessed that when he composed his great work, he carried himself strangely, and was taken for insane. He said that men of genius are often like the insane, given to continual agitation. Tolstoi acknowledged that philosophical scepticism had led him to a condition bordering on insanity. George Sand says of herself, that at about seventeen she became deeply melancholic; that later she was tempted to suicide; that this temptation was so vivid, sudden and bizarre that she considered it a species of insanity. Heine‡ said that his disease may have given a morbid character to his later compositions.

However paradoxical such sayings may seem, a serious investigation will show striking resemblances between the highest mental activity and diseased mind. As a proof of

\* Plutarch.

† "Contarini Fleming."

‡ "Correspondance Inédite," Paris, 1877.

this, we will give a number of facts, to which many more might be added.

#### BIOGRAPHICAL FACTS SHOWING ECCENTRICITIES, NERVOUS DISEASES, AND SYMPTOMS OF INSANITY.

The difficulty of obtaining facts of an abnormal or pathological nature and otherwise unfavorable, is obvious. Authors have not only concealed such data, but have not deemed them important enough to record. It is due to the medical men, whose life brings them closest to abnormal reality, that such facts have been gathered. If it be said that the abnormal or exceptional must be taken with some caution, because it is natural for the mind to exaggerate striking characteristics, it must be remembered that such facts, when unfavorable to reputation, are concealed. In the study of any exceptional or abnormal individual, as the insane or genuis, one finds much more concealed than is known.

Socrates had hallucinations from his familiar genius or demon. Pausanias, the Lacedæmonian, after killing a young slave, was tormented until his death by a *spirit*, which pursued him in all places, and which resembled his victim. Lucretius was attacked with intermittent mania. Bayle says this mania left him lucid intervals, during which he composed six books, "*De Rerum Natura*." He was forty-four years of age when he put an end to his life. Charles the Fifth had epileptic attacks during his youth; he stammered. He retreated to a monastery, where he had the singular fantasy of celebrating his own funeral rites in his own presence. His mother (Jane of Castile) was insane and deformed; his grandfather (Ferdinand of Arragon) died at the age of sixty-two, in a state of profound melancholia. Peter the Great, during infancy, was subject to nervous attacks, which degenerated into epilepsy. One of his sons had hallucinations, another convulsions. Cæsar was epileptic, of feeble constitution, with pallid skin, and subject to headaches. Linné, a precocious genius, had a cranium hydrocephalic in form. He suffered from a stroke of paralysis. At the end of one attack he had forgotten his name. He died in a state of senile dementia. Raphael experienced temptations to suicide.\* Pascal,† from birth till death, suffered from ner-

\* "Raphael," pages de la vingtîème année.

† "L'Amulette de Pascal," 1846.

vous troubles. At one year of age he fell into a languor, during which he could not see water without manifesting great outbursts of passion ; and still more peculiar, he could not bear to see his father and mother near one another. In 1627 he had paralysis from his waist down, so that he could not walk without crutches ; this condition continued three months. During his last hours he was taken with terrible convulsions, in which he died. The autopsy showed peculiarities. His cranium appeared to have no suture, unless, perhaps, the lamboid or sagittal. A large quantity of the brain substance was very much condensed. Opposite the ventricles there were two impressions, as of a finger in wax. These cavities were full of clotted and decayed blood, and there was, it is said, a gangrenous condition of the dura mater. Walter Scott, during his infancy, had precarious health, and before the age of two was paralyzed in his right limb. He had a stroke of apoplexy. He had this vision on hearing of the death of Byron : Coming into the dining-room, he saw before him the image of his dead friend ; on advancing toward it, he recognized that the vision was due to drapery extended over the screen.\*

Voltaire, like Cicero, Demosthenes, Newton, and Walter Scott, was born under the saddest and most alarming conditions of health. His feebleness was such that he could not be taken to church to be christened. During his first years he manifested an extraordinary mind. In his old age he was like a bent shadow.† He had an attack of apoplexy at the age of eighty-three. His autopsy showed a slight thickness of the bony walls of the cranium. In spite of his advanced age, there was an enormous development of the encephalon.‡ Michael Angelo,§ while painting "The Last Judgment," fell from his scaffold and received a painful injury to the leg. He shut himself up and would not see any one. Bacio Rontini, a celebrated physician, came by accident to see him. He found all the doors closed. No one responding, he went into the cellar and came upstairs. He found Michael Angelo in his room, "resolved to let himself die." His friend, the physician, would not leave him. He brought him out of the peculiar frame of mind into which

\* "Edinburg Medical and Surgical Journal," January, 1843.

† Ségar, "Mem.," t. I.

‡ R. Parise, "Philosophie et Hygiène."

§ "Histoire de la Linture en Italie" (Reveille-Parise).

he had fallen. The elder brother of Richelieu, the cardinal, was a singular man ; he committed suicide because of a rebuke from his parents. The sister of Richelieu was insane. Richelieu himself had attacks of insanity ; he would figure himself as a horse, but afterwards would have no recollection of it. Descartes, after a long retirement, was followed by an invisible person, who urged him to pursue his investigations after the truth. Goethe was sure of having perceived the image of himself coming to meet him. Goethe's mother died of an apoplectic attack. Cromwell, when at school, had an hallucination in his room ; suddenly the curtains opened, and a woman of gigantic stature appeared to him, announcing his future greatness. In the days of his power he liked to recount this vision. Cromwell had violent attacks of melancholic humor ; he spoke of his hypochondria. His entire moral life was moulded by a sickly and neuropathical constitution, which he had at birth.

Rousseau was a type of the melancholic temperament, assuming sometimes the symptoms of a veritable pathetic insanity. He sought to realize his phantoms in the least susceptible circumstances ; he saw everywhere enemies and conspirators (frequent in the first stages of insanity). Once, coming to his sailing vessel in England, he interpreted the unfavorable winds as a conspiracy against him, then mounted an elevation, and began to harangue the people, although they did not understand a word he said. In addition to his fixed ideas and delirant convictions, Rousseau suffered from attacks of acute delirium ; a sort of maniacal excitation. He died from an apoplectic attack.

As space forbids giving further details, we will mention some persons of great talent or genius who have shown symptoms of insanity : Saint Simon, Swedenborg, Haller, Comte, Loyola, Luther, Jeanne d'Arc, Mohammed, Molière, Lotze, Mozart, Condillac, Bossuet, Madame de Staël, Swift, Johnson, Cowper, Southey, Shelley, Byron, Goldsmith, Lamb, Poe, Carlyle, Keats, Coleridge, Burns, George Eliot, Alfred de Musset, George Sand, Wellington, Warren Hastings, Bach, Handel, Newton, Chateaubriand, Beethoven, Alexander the Great, and Napoleon.

Additional biographical data concerning the different types of genius might be added, and many will occur to any one who has read the lives of great men. In certain

instances the authority for some of the facts might be questioned, but the great majority will remain.

Precocity is a symptom of genius and insanity. Dante composed verses at nine; Tasso and Mirabeau at ten; Comte and Voltaire and Pascal were great thinkers at thirteen; Niebuhr at seven; Jonathan Edwards, Bossuet and Pope at twelve; Goethe before ten; Victor Hugo and Fénelon at fifteen. Handel and Beethoven composed at thirteen; Mozart gave concerts at six; Raphael was renowned at fourteen. Yet some great men were regarded as poor pupils; as, for example, Pestalozzi, Wellington, Balzac, Humboldt, Boccaccio, Linné, Newton, and Walter Scott.

Originality is very common, both to men of genius and the insane but in the latter case it is generally without purpose. Hagen makes irresistible impulse one of the characteristics of genius, as Schüle (see above) does of insanity.\* Mozart avowed that his musical inventions came involuntarily, like dreams, showing an unconsciousness and spontaneity which are also frequent in insanity. Socrates says that poets create, not by reflection, but by natural instinct. Voltaire said, in a letter to Diderot, that all manifestations of genius are effects of instinct, and that all the philosophers of the world together could not have given *"Les Animaux Malades de la Peste,"* which La Fontaine composed without knowing even what he did. According to Goethe, a certain cerebral irritation is necessary to poets. Klopstock declared that in dreams he had found many inspirations for his poems. Thus as the great thoughts of genius often come spontaneously, so it is with the ideas of the insane.

Geniuses are inclined to misinterpret the acts of others, and consider themselves persecuted. These are well-known tendencies of the insane. Boileau and Chateaubriand could not hear a person praised, even their shoemaker, without feeling a certain opposition. Schopenhauer became furious and refused to pay a bill in which his name was written with a double "p." Unhealthy vanity is also common in the ambitions of monomaniacs.

Alienists hold, in general, that a large proportion of mental diseases is the result of degeneracy; that is, they are the offspring of drunken, insane, syphilitic, and consumptive parents, and suffer from the action of heredity. The

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\* "Klinische Psychiatrie."

most frequent characteristics of mental diseases are : apathy, weakness or loss of moral sense, impulsiveness, propensity to doubt, verbosity or exaggerated acuteness, extreme vanity or eccentricity, excessive preoccupation with one's own personality, mystical interpretations of simple facts, hallucinations, abuse of symbols or special terms, sometimes suppressing every other form of expression, and a general psychical disproportion through an excessive development of certain faculties, or by absence of others. The reader is particularly requested to note these psychical symptoms of insanity ; for almost all of them, as we shall see, are found in men of genius. If *X* were substituted for insanity, and *Y* for genius, so as to dispel preconceived notions, an impartial observer would be very liable to say that the characteristics of *X* and *Y* bring them under the same general category. Also some other physical characteristics of the insane are almost as frequent in geniuses. They are : ~~a~~ symmetry of face and head, irregularity in teeth, and rachitism. In the insane are frequently found abnormally large or small ears or mouth; hare-lips, hypertrophy of the under lip; gums wide or one-sided; bent nose; hands unequal in size; abnormal growth of hair over body; growth of beard on women and defective eyebrows, etc. Cerebral anaemia is frequent, and hyperæmia very frequent, in the insane. Wildermuth, from an investigation of one hundred and twenty-seven idiots, found sixty-nine normal craniums. Meynert \* says that one hundred and fourteen out of one hundred and forty-two idiots show signs of degeneration.

In order that some of the results may be seen more in detail, we give some tables.†

TABLE I.

	Cranial Capacity in Cubic Centimeters.
<i>Men.</i>	
Average of 30 normal craniums . . . . .	1,450
Average of 10 epileptic craniums . . . . .	1,523
<i>Women.</i>	
Average of 30 normal craniums . . . . .	1,300
Average of 14 epileptic craniums . . . . .	1,346

\* Meynert, "Klinische Vorlesungen über Psychiatrie," 1890.

† Welcher's Schiller's Schädel, etc.

Here in Table I. (as in the case of men of talent and genius in the following Table II.) we see that the abnormal exceed the normal in brain development; that is to say, in these cases the insane and genius both exceed the normal man in cranial capacity or weight of brain.

TABLE II.

MEN OF TALENT AND GENIUS.	Age.	Weight of Brain in Grammes.	Medium Weight of Average Brain at Same Age.	Cranial Capacity in Cubic Centimeters.	Horizontal Circumference in Millimeters.
Webster (statesman) . .	70	1,520	1,303	-	-
Thackeray (humorist) . .	52	1,660	1,368	-	-
Cuvier (scientist) . .	63	1,820	1,340	-	-
Gauss (mathematician) . .	78	1,492	1,246	-	-
Broca (anthropologist) . .	65	1,485	1,331	-	-
Kant (philosopher) . .	-	-	-	1,740	-
Napoleon I. (general) . .	-	-	-	-	564
Darwin (scientist) . .	-	-	-	-	563
Wagner (musician) . .	-	-	-	-	600
Dante . . . . .	-	-	-	1,493	-
Schumann, Robert . .	-	-	-	1,510	-
Schwann (scientist) . .	-	-	-	-	565
Napoleon III. . . . .	-	1,500	-	-	-
Müller (scientist) . .	-	-	-	-	614
Liebig (chemist) . .	70	1,352	1,303	1,550	-
Whewell (philosopher) . .	72	1,390	-	-	-
Average of 35 men of talent . . . . .	65	1,474	1,319	-	-

Taking now five hundred and fifty-one millimeters as an average horizontal circumference of the head, it will be seen that Napoleon, Darwin, Wagner, Schwann, and Müller exceed the normal. The averages of brain weight for the different ages, given by Welcher, are not absolute, but sufficiently near the truth for comparison.

TABLE III.

	Weight of Brain.	Number of Brains.
Melancholia . . . . .	1,490.33	9
Mania . . . . .	1,488.46	15
Old cases . . . . .	1,454	23
Transition forms . . . . .	1,447.05	15
		62

If 1,350 grammes is taken as an average weight for a brain, Table III. gives 62 insane much above the normal: but this is 62 out of 579 brains weighed. If we take the totals of the 579, as given in Table IV., all are below the average except the maniacs among men. The extreme divergence from the average may be regarded as abnormal and in the light of anomalies. To show more clearly the anomalous nature of the brains of the insane, Table V. is given.

TABLE IV.

Total: Melancholia . . . . .	Men . .	1,295.18
" Mania . . . . .	Women . .	1,210.37
" Old cases . . . . .	Men . .	1,376.41
" Paralytics . . . . .	Women . .	1,221.09
" Transition forms . . . . .	Men . .	1,319.22
	Women . .	1,175.74
	Men . .	1,214.82
	Women . .	1,068.24
	Men . .	1,336.03
	Women . .	1,190.03

We see, therefore, from these tables that particular individuals, among the insane and people of genius, both show extremely large cerebral capacity: but that in general the insane are much below the normal, while the genius is above in brain capacity or brain weight.

TABLE V.

Melancholia . . . . .	Men . .	53	1,052
Mania . . . . .	Women . .	51	1,035.65
Old cases . . . . .	Men . .	39	-
Paralytics . . . . .	Women . .	53	1,035
Transition forms . . . . .	Men . .	86	-
	Women . .	31	1,057.40
	Men . .	145	1,032.81
	Women . .	29	1,048.88
	Men . .	43	-
	Women . .	49	1,055.06

Bischoff found some of the heaviest brains (weighing 1,650, 1,678, 1,770, and 1,925 grammes) among common and unknown laborers. But such cases are very rare; so much so, that the average is not affected. De Quatrefages says that the largest brain has been found in a lunatic, and the next largest in a genius. The main fact brought out by the tables is the large number of anomalies and deviations from the normal in both insanity and genius.

## CONCLUSION.

The facts cited thus far would seem to indicate that genius is not only abnormal, but often passes into a pathological form. But it may be asked more particularly as to what is meant by pathological and abnormal.

The modern and *fundamental conception of disease is an excess of normality*. This statement can be supported by the highest medical authorities. Virchow\* says that substratum upon which pathological manifestations play is a repetition or reproduction of the normal morphological stratum; its pathological character consists in this, that the stratum arises in an unfit way, or at the wrong place or time; or it may depend upon an abnormal increase of the tissue elements, resulting in deviation, which becomes degeneration. Thus in pathological relations, there is a preservation of specific normal characteristics; nothing new arises functionally. *Pathology is in potentia in physiology.*

According to Perl, pathological phenomena are distinguished from the normal by their unequal and little constancy. Colnheim affirms that physiological laws hold their validity in diseased organisms; that abnormal means a considerable deviation from the type. †Ziegler says that disease is nothing else than a life whose manifestations deviate in part from the normal.

In saying that genius manifests the symptoms of a neurosis or psychosis, we mean an excessive nervous or cerebral action. Many forms of insanity are also manifestations of similar excessive action. Such action in one individual can give rise to most wonderful, original, and brilliant ideas, and we call it genius; in another individual it produces also wonderful and original thoughts, but highly absurd, and we call it insanity. But it appears that *the fundamental cause in both genius and insanity is the same: it is the excessive psychical or nervous energy.*

Some of the flights of genius are most brilliant and fascinating, yet they are none the less abnormal; and when this abnormality reaches a certain degree, it can become pathological. Thus Don Quixote has wonderful ideas; he is an ardent soul with brilliant thoughts superior to the opinions

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\* "Cellular Pathologie."

† "Allegemeine Path. Anatomie."

of his contemporaries. Yet he renders no account of real things; he is in the air; he takes his imaginations for realities; sees everything in his dream; he is without critical spirit, and has little balance. Edgar Poe is full of fantasy, invention, original creations, extreme notions, regardless of critical spirit. Poe was somewhat dipsomaniac. While his writings are remarkable, yet they have elements similar to the wanderings of the insane.

Some characteristics of genius are originality, egotism, vanity, indiscretion, and lack of common sense; precocity, sterility, irritability, impetuosity, melancholia, and susceptibility to visions and dreams. These characteristics belong also to the insane. If it be said that it is cruel to compare much that we consider highest in the world with insanity, the reply is, that we might as well object to classing man among the bipeds, because vultures are bipeds. Any analysis of genius that may show the closest relation to insanity cannot change genius itself. Faust and Hamlet remain Faust and Hamlet. The question is not a matter of sentiment, but of facts. Genius and great talent are those forms of abnormality most beneficial to society.

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